

4-20-05

RECEIVED

APR 25 2005

Rickey Barnes

To City of Huntington Beach Dept of Planning

Regarding - Seawater Desalination Project of H.B.

Recently I was filling my Brita water filter and I noticed colored bubbles in the water for about three days. I also experienced a distracting pain under my arms in my lymph glands. I called and asked why the water looked like it had a lot of soap that didn't go away. A man from the city came by after I called and said, "there may have been chemicals leaking into my pipes because they had just connected the pipes with down the block on a new housing project and they used chemicals that look like soap." I still feel pain and will go to see a doctor. I don't know if any of my neighbors on Doncaster experienced any problems, but they probably are unaware of the circumstances.

We on Doncaster Drive, live directly down the block from the Edison Electric or Generating Plant, so we are

already exposed to poor air quality, we live across the street from a toxic waste dump where there is a sign warning people of the hazardous effects of the soil and water on their health. There are cancer causing toxins & methane gases leaking out of the soil. b

Now the city planners are considering further contamination of the air quality by putting in a Seawater Desalination Project to bring clean water to another area.

The health and lives of the people who live here should be considered above this project. I wonder how homes costing one and a half million are being built in such a highly contaminated area? c

Maureen Mill

8481 Doncaster Dr

Huntington Beach

CA. 92646

phone 714-536-8164

Response No. 40

Maureen Mills

- 40a. This text does not contain information relevant to the DREIR, and does not require a response.
- 40b. All air quality impacts of the proposed project were determined to be less than significant with the exception of construction related NO_x emissions (refer to DREIR Sections 5.4 and 5.9). However, this impact would be short-term in nature, ceasing after the completion of the construction process.
- 40c. This text does not contain information relevant to the DREIR, and does not require a response.

May 4, 2005

City of Huntington Beach
MAY 05 2005

Ricky Ramos
Huntington Beach Planning Department
2000 N. Main Street
HB CA 92648

RE: Draft Recirculated Environmental Impact Report 2005

Inadequacies in the EIR for Desalination plant 2005

1. The EIR from the AES plant should have been included in this EIR. In my opinion the desal piggy backing on the AES plant makes their EIR relevant.

a

2. Did the AES plant have any significant impact on the air quality since it only ran 2/3rd of the year? If so the Desal which is running another 1/3 of the year should have considered the existing impact by the AES plant.

b

3 .IMPACTS Significant Criteria EIR Air Quality 5.4-11" Violate any air quality standard or contribute substantially to an existing or projected air quality violation; Who knows what the EIR for the AES plant said about Air Quality?

c

EIR 5.4.11 "If the project causes an exceedance of either the state one-hour or eight hour CO concentrations, the project would be considered to have a significant local impact." This EIR does not take in account the AES conditions combined with the DESAL.

4. The AES plant operates 255 days of the year and 110 days runs the water through the plant BUT does not heat it. The Desal plant needs heated water 7 days a week 24 hours a day. The desal EIR does not mention this inadequacy

d

5. The pipeline running across HB and into Newport and Costa Mesa will have a significant affect on our traffic and compromise our streets when the end product will not benefit any of these cities.

e

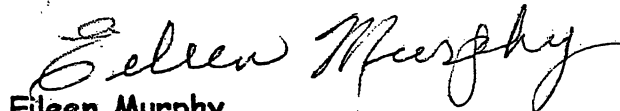
6. The quality of the ocean water hasn't been studied sufficiently because they have a diffuser problem. EIR W1-2 "The diffuser Would provide an increased dilution factor at the shoreline. However, a diffuser would increase the seabed salinity within 600 feet of the outfall because only $\frac{1}{2}$ of the water column would be engaged for dilution because the present discharge configuration ejects the concentrated seawater away from the seabed."

f

7. Since the product has no buyers and is not needed by any of the cities that will be affected by the polluting of the ocean, the air and the quality of life this project should be rejected and the EIR should be denied because of inadequacies.

g

Respectfully submitted.



Eileen Murphy
201 21st Street
HB CA 92648

Response No. 41

Eileen Murphy

- 41a. Since the proposed project would not alter operations at HBGS, only the impacts of the proposed project need to be considered within the DREIR. Also refer to Responses 1g and 2z, above.
- 41b. Refer to Response 1g, above.
- 41c. Refer to Response 41a, above. Section 5.4-11 of the DREIR was intended to analyze project-specific air quality impacts only. The proposed project's cumulative impacts are analyzed within Section 6.3 of the DREIR.
- 41d. Refer to Response 34b, above.
- 41e. Refer to Response 34a, above.
- 41f. The HBGS outfall is not currently equipped with a diffuser. The quote incorporated by the commentator was taken from Appendix W of the DREIR, which models the potential effects of adding a diffuser to the outfall.
- 41g. This paragraph provides a conclusion to the comment letter and does not require a response.

Larry Porter
1501 Westcliff Dr #201
Newport Beach California 92660
Voice and Fax 949 722 9166
Email : Dubbietub@aol.com

RECEIVED
MAY 27 2005

May 27th 2005

To Whom it May Concern : Poseidon Respondent

First

I will discuss the "Ocean Water Quality" at the AES intake pipe.
Your EIR states that : because of a "Model of Your Chosing" that the water at the intake pipe is "SeaWater" and would not be subjected to / contaminated by the discharges of :
1) OCSD's 250 million gallons per day discharge 2) The San Gabriel River 3) The Los Angeles River 4) The Dominguez Channel 5) The Many ships that are increasingly anchored off shore.

a

Secondly

The EIR only mentions , and tries to just focus on BACTERIA. When in reality the discharges are , but not limited to : 1) OIL and GREASE - minimally from OCSD alone 61.5 thousand pounds per day permitted. That's just OCSD. 2) PHARAMECUTICALS? No mention? Why? 3) Pesticides? 4) ENDOCRINE DISRUPTORS ?

OCSD FACTS

Discharge Quantity : 250 million gallons every day . EVERY DAY , EVERY DAY. The discharge is buoyant. Fresh water is lighter than salt water.

b

Wind direction and "STUFF" goes down wind . Wind direction creates currents and the current and the wind takes "STUFF" with it. On shore which the EIR refuses to admit. The EIR refuses to ACKNOWLEDGE THE TRUTH.

San Gabriel River – Los Angeles River – Dominguez Channel

These now flood control channels flow 24 hours per day , 365 days a year even in the summer after prolonged periods of no rain. And when it does rain and when it doesn't rain. What color is the water? Is it the color of "SEA WATER" Is it the color of "SEA WATER" colored with a lot of "Stuff" from the Urban Runoff " and OCSD discharge? Describe the different constituents relating to the different colors please.

What You See is Usually True?

Please describe what one would see at the AES intake pipe ? What is the real chemistry being sucked in. How many times has the applicant or his people been close to the OCSD discharge site? Why is it that I know I am near it 2 miles away down wind when the "Experts" say that couldn't be? Why is it that the RWQCB changed the rules that only the top ten feet near the OCSD discharge would be designated OK for swimming? Could it be that 15 feet down it's contaminated ? And that's just considering "FECAL COLIFORM" Might the water be contaminated with other bad "STUFF"? Why don't you talk about the other "BAD STUFF" ?

b

Tampa Bay

Why did Poseidon fail in Tampa Bay? Is it still down? Is not the treatment process described in the this EIR the same as used in Tampa Bay? If not , how is it different? Where else is a like (so minimal process train employed – my words) . Its good to compare apples with apples and oranges with oranges. Yes? No? How much more chemicals did they want to use than what the indicated they would use? Did the Tampa plant have difficulties with permits because of the increased chemical usage?

c

On the Beach

I suggest you stand on the beach in front of the AES power plant and contemplate truthfully , with the utmost candor what you see and feel. The surf : are the waves breaking onshore? Why? Do the surfers surf toward the shore ? Do they surf towards Catalina? Towards the OCSD outfall? Towards the San Gabriel River , The LA River, The Growing Harbor Complex.?

d

Soapy Water Bubbles

Maybe this heads up will help. Go to the toy store. Get a bubble maker. I'll reimburse you. Go to the beach (or anywhere) – the beach is more fun? Clean air. Now , after dipping your plastic dealibob in the soapy solution and blowing at the hole in the dealibob. Which way do the bubbles go? Downwind? Upwind? Which way?

e

Trash the Model

Don't use the silly model that has been used. It's a joke. Get real . Just describe what is actually happening, what is actually at the AES intake. It's better for the applicant to get this "Intake Pipe Situation" correct. Does the applicant want more egg on its face like Tampa?

f

Over , Larry Porter

Larry Porter

Response No. 42

Larry Porter

- 42a. This paragraph does not contain a comment on the DREIR and does not require a response.
- 42b. Potential sources of contamination to the HBGS intake (including the OCSD discharge, Los Angeles River, San Gabriel River) are analyzed within Section 5.10, *OCEAN WATER QUALITY AND MARINE BIOLOGICAL RESOURCES*.
- 42c. Refer to Response 21c, above.
- 42d. This paragraph does not contain a comment on the DREIR and does not require a response.
- 42e. This paragraph does not contain a comment on the DREIR and does not require a response.
- 42f. The commentator does not provide specifics regarding the “silly model that has been used” nor does the commentator provide information on an alternative to this model. No response is necessary.

May 16, 2005

Ricky Ramos
City of Huntington Beach
Planning Department
2000 Main Street
Huntington Beach, CA. 92648

CITY of Huntington Beach
MAY 18 2005

Dear Mr. Ramos,

I believe we spoke about a month ago about the Poseidon Desalination Plant EIR. I had many questions about the report. These are my comments and questions:

I am concerned about the noise levels both during the building of the plant and after it has been finished. Noise levels have been compared to a Mack trucks' engine revving. Since walls must be built and screens would be put up, this is an acknowledgement it would be noisy. I envision walls built to keep freeway like noise out, yet you still being able to hear obnoxious noise. I wonder whether the racket would bother Hotel visitors.

The report talks about digging very deep holes where we will be driving (Magnolia, Hamilton). Traffic dilemmas like what has happened with the Sanitation District don't sound inviting.

Pipes will be built on Hamilton that are described as though will be visible during and after the plant is built. The wording wasn't clear. Will any pipes being built going to the Sanitation District be visible in our neighborhood? If so, what will that look like? Another eyesore for our neighborhood to bear is a slap in the face to the many taxpayers who live here.

I'm concerned about the closeness to a lot of earthquake faults to your deep holes being dug. Could this trigger a quake?

The report talks about toxic chemicals flowing into the ocean if the plant experiences an emergency. It doesn't explain what the plant considers an emergency. Could it be something as small as the electricity going out or as large as a 9.0 earthquake? This isn't clear. Neither is the amount of chemicals the plant would allow to go into our ocean. These questions need to be answered in a clear and concise way for the citizens of our community and for anyone who would be swimming or wading here. This sounds like a lawsuit waiting to happen.

Many questions have been asked about the promises Poseidon will be making to the city, reimbursing the city for our "trouble". I'm concerned about the long term financial effects we will have to bear if this plant isn't profitable or if it's sold off.

Our community will be affected by this plant, yet we will be getting no water from it. This is an outrageously unfair deal for South East Huntington Beach.

a

b

c

d

e

f

g

Our immediate beaches (Between Newland and Brookhurst) have been said to have "urban runoff", a catch all term vaguely describing "people" causing the contamination. This is not an acceptable explanation. Since we don't know why these waters are riddled with bacteria, we need to learn why before bringing in more potential contamination. The Sanitation District and the AES power plant are right at the door to these waters. Although both plants have been cleared of causing the problems, there is still a question of where it's coming from. To bring another plant in where there is existing contamination would be bad for residents and for tourism. The media has not been friendly to Huntington Beach over our water problems. Friends and family from the East coast have spoken to me about these problems. Do we want to risk adding to this question mark tourists have about the cleanliness of our beaches?

h

The entire EIR has many unanswered questions and raises fear in my mind about chemicals, noise, traffic problems, loss of tourist income and other above mentioned problems. After the experts have done their work by writing about negative impacts, they come back and essentially O.K. the building of Poseidon. The impact on Huntington Beach taxpayers can be avoided.

i

My hope is that all of these questions will be taken into consideration when it's time to vote on whether to allow this company to be part of our coastline landscape.



Joanne Rasmussen

Response No. 43

Joanne Rasmussen

- 43a. Construction of the proposed desalination facility would be limited to the hours of 7 AM to 8 PM, per the City of Huntington Beach Municipal Code. In addition, a truck and vehicle routing plan would further minimize noise levels due to construction. Impacts during construction would be short-term in nature, and are not anticipated to be significant.

Moreover, the project would be required to meet the City's Industrial noise standard of 70.0 dBA at the HBGS property line. It is not expected that soundwalls (similar to those located along highways) would be necessary to mitigate noise levels.

- 43b. Construction of the proposed pipeline would utilize standard pipeline trenching techniques (except in places where micro-tunneling or directional boring would be utilized), and would not be located deeper than necessary. Portions of the pipeline proposed within the City of Huntington Beach would be subject to City review and permit process. Traffic impacts due to pipeline construction have been addressed properly according to CEQA in Section 5.9, *CONSTRUCTION RELATED IMPACTS*, of the DREIR. In addition, mitigation measures CON-31 through 36 would apply to the construction process.
- 43c. No pipes associated with the proposed project would be visible after construction.
- 43d. It is not anticipated that any construction activities associated with the project would trigger a seismic event.
- 43e. All chemicals stored on-site would be stored with 110-percent spill containment capability, utilizing appropriate storage techniques/materials. The desalination facility operator would develop a hazardous waste management and safety plan, and the project would comply with all Federal, State, local, and Occupational Health and Safety Association (OSHA) requirements.
- 43f. Economic impacts are outside the statutory scope of CEQA unless substantial evidence can demonstrate that an economic effect would result in a physical change to the environment. In this instance, the author expresses concerns about impacts to the City's finances if the proposed project has financial problems. No response is necessary.
- 43g. No purchase agreements exist for proposed desalinated product water. It has not been determined if the City of Huntington Beach will or will not purchase desalinated water from the project.
- 43h. Potential impacts of the OCSB discharge and urban storm water/dry weather runoff are analyzed in detail within Section 5.10, *OCEAN WATER QUALITY AND MARINE BIOLOGICAL RESOURCES*.

- 43i. This text provides a conclusion to the comment letter and does not require a response.

ROD ALAN RASMUSSEN

May 16, 2005

City of Huntington Beach
MAY 18 2005

Mr. Ricky Ramos
City of Huntington Beach
Planning Department
2000 Main St.
Huntington Beach, CA. 92648

Re: Poseidon Desalination Plant EIR

Dear Mr. Ramos:

As a resident of the southeastern portion of Huntington Beach I would like to add my two cents worth to the above referenced project. Despite what you have and are hearing from the good people who make up SEHBNA, not all of us in this area are against Poseidon. Those that are can only be described as your typical NIMBY's. Most of these people haven't had anything good to say about our country since Vietnam and long for that era to return. Hence they will jump at any chance to protest and demonstrate and otherwise attempt to cause a ruckus. I for one would like to see this project get the green light if for no other reason than to show the rest of the area, state and nation that at least one community is willing to stand up to the liberals and luddites and all the other dis-affected hippie/environmental types. The benefits of Poseidon to this community are just extra!

a

Regards,



Rod Rasmussen

Response No. 44

Rod Rasmussen

- 44a. The author expresses his support for the proposed project. No response is necessary.

John F. Scott

22032 Capistrano Lane - Huntington Beach, CA 92646-8309
Phone: (714) 962-1746 - Fax: (714) 962-1746 - Email: 4johnscott@earthlink.net

May 26, 2005

Ricky Ramos
City of Huntington Beach Planning Department
2000 Main St.
Huntington Beach, California, 92648

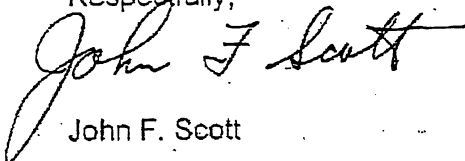
Dear Mr. Ramos:

My response to a portion of the Poseidon EIR is a enclosed.

It has been very difficult for me and I would guess for others, to respond to this EIR because of the manner in which it was made available to the public. I would urge the city, if indeed it wants citizen participation, to utilize current technology to give busy citizens easier and cheaper access to such documents.

It would be nice to someday hear from public officials that SEHB was destined to get something besides more industrialization. One would think that with AES, OCSD, and NESI, planners would begin to understand that residents here already bear more than their share of the city's dregs.

Respectfully,



John F. Scott

Poseidon's Desalination Pipeline Alignment

The Poseidon EIR has two rejected alternative routing proposals for the pipeline that would carry the produced water to its potential point of usage somewhere in South County. Under the Alternate 2 scenario the 42-48 inch pipeline carrying the water to its users in South County would have utilized the Edison right-of-way north of Hamilton Avenue to carry their water to the Santa Ana River. Their pipeline then would have proceeded in the Edison right-of-way in a northeasterly direction adjacent to the river and cross the river at a point coinciding with the northern border of the Fairview Park and the Costa Mesa Golf Course. **Edison rejected this alternative.**

Alternative I would have had the pipeline constructed under Hamilton Avenue and then continue east across the river and down Victoria Avenue. **Costa Mesa rejected this Alternative.**

What remains is a convoluted route that leaves Huntington Beach bearing the brunt of getting water to South County. The remaining route is down Hamilton to Brookhurst and up Brookhurst to Adams and across the river. The planned route will close two lanes on Hamilton and Brookhurst during construction. Since both Edison and Costa Mesa have rejected Poseidon's alternate routes the EIR is limited to a route wandering through Southeast Huntington Beach. Unlike responses from Edison and Costa Mesa, Huntington Beach city officials apparently have agreed to let Hamilton, Brookhurst and Adams to be torn up and for the area to again be subjected to the dewatering process, the noise and pounding of heavy equipment and damage to homes.

Presently over 60 families have joined a lawsuit seeking to recover hundreds of thousands of dollars in damages to their homes from the City, the construction company and the Sanitation District resulting from sewer construction in Brookhurst, Banning and Bushard streets. Trenching, dewatering and heavy equipment have left homes with cracked, empty pools, doors that will not close, slabs that are cracked, room additions that are moving away from the house and many people heartsick as they witness the destruction of the home in which they have spent a lifetime.

Again residents of Southeast Huntington Beach will be subjected to the perils incumbent upon: dewatering, deep trenches, the pounding of heavy equipment and the traffic problems that months of torn up streets will bring. Despite the experience with the OCSD sewer line, this EIR totally ignores the problem and lists no mitigation measures to resolve it. Residents of Southeast Huntington Beach will have to again turn to legal measures to recover damages resulting from Poseidon's pipeline construction.

John Scott
22032 Capistrano Lane
Huntington Beach, CA 92646-8309
Phone: (714) 962-1746

Response No. 45

John F. Scott

- 45a. The DREIR was distributed to the public according to the CEQA Guidelines. In addition, the proposed project would be compatible with the existing City land use and zoning designations for the site.
- 45b. Refer to Responses 25a, 43b, and 49c.

City of Huntington Beach

MAY 26 2005

May 26, 2005

Robert Thomas

9152 Playa Dr.

Huntington Beach

92646

City of Huntington Beach

Planning Department

Mr. Ricky Ramos

Dear Mr. Ramos,

This letter is to request that you deny the Poseidon desalination plant proposed for Newland Street. I am concerned about the potential increase in air and water pollution. I am also concerned for the damage to our neighborhood that would be caused by the construction of the transmission pipeline. Finally I ask that the City of Huntington Beach recognizes the value of protecting our coast for the current and future generations.

The OC Register reported on April 28, 2005 that The American Lung Association rated Orange County air quality as An "F" in three pollution categories. These pollutants include ozone, and fine particle pollution. The AES generation plant needed to support the Poseidon project is a major source of air pollution. The South Coast Air Quality Management District agreed that the ALA's method of assigning grades is fair. These older, polluting power generators are slated to be shut down and no further heavy industry should be added.

The quality of ocean water is often poor at Newland Street. When the tide is low the intake and outflow pipes for the AES plant are almost in the surf zone. It is obvious that the changes in water temperature and salinity are not helpful to the marine life and water quality. If we want to call our city "SURF CITY" shouldn't we make the protection of the ocean our prime goal?


2.

The Orange County Sanitation District has tried for the past two years to construct a pipeline on Bushard Street. This project has been a complete failure and has resulted in numerous lawsuits. My family has had to deal with the noise and dust of heavy trucks idling practically right outside our bedroom at 6:30am and waking us up. The constant vibrations have felt like mini-earthquakes. The 10 minute round trip to drop the kids off at Sowers School was doubled due to closed streets. The pipeline to South County would do nothing to add to the quality life for residents of Southwest Huntington Beach and would potentially be another boondoggle.

I reserve the right to bring legal action, if needed, in response to these or any undiscovered environmental or health problems resulting from the Poseidon plant.

Huntington Beach has more than its fair share of heavy industry. It is time for other county cities to share in the burden of power, sewer and water utilities. Just last year the Army Corp of Engineers had to abandon plans to add sand to west Newport Beach due to public outcry. Surely the citizens of Huntington Beach deserve the same consideration from our representatives. Is the ocean in front of the city of Huntington Beach any less valuable than that of Newport or Laguna? The city of Irvine was able to take control of El Toro and close runways that have been in use for 50 years. As a result the citizens of Huntington Beach now deal with ever increasing traffic routed right over us. Please think of what is best for the ocean the air and the families who live in this SURF CITY and reject the Poseidon plant.

Sincerely


Robert J. Thomas

Response No. 46

Robert Thomas

- 46a. This paragraph provides an introduction to the comment letter and does not require a response.
- 46b. The HBGS is a permitted power plant that has undergone a separate environmental clearance process. The proposed desalination project would not alter the operations of the HBGS. Therefore, the air quality impacts of the HBGS need not be considered as part of the EIR.
- 46c. This paragraph does not contain a specific comment on the DREIR. Ocean water quality impacts have been analyzed within Section 5.10, *OCEAN WATER QUALITY AND MARINE BIOLOGICAL RESOURCES* of the DREIR.
- 46d. No pipelines associated with the proposed project would occur within south Orange County. Rather, the desalinated water pipeline is proposed within the Cities of Huntington Beach and Costa Mesa. Potential impacts due to pipeline construction are addressed within Section 5.9, *CONSTRUCTION RELATED IMPACTS* of the DREIR.
- 46e. Comment noted. No response is necessary.
- 46f. This text does not contain information relevant to the DREIR and does not require a response.

RECEIVED

APR 12 2005
City of Huntington Beach

Ricky Ramos
City of Huntington Beach Planning Department
2000 Main Street
Huntington Beach, CA 92648

April 9, 2005

Subject: Desalination Plant

Dear Mr. Ramos:

I am 54 years of age and although my wife and I currently live in the city of Orange I have been visiting HB nearly every weekend since I was a teenager. At that time it was safe to hitchhike which is what I did. Now my wife and I visit regularly eating and shopping. I would like to briefly express my views opposing the desalination plant.

a

Much of the water that would be produced is slated for proposed development in Rancho Santa Margarita which I am totally opposed to as it would destroy critical wild areas.

b

Huntington Beach has an excellent groundwater reclamation plan. Stick with that and upgrade as needed.

Lastly, and no matter what the fibs Poseidon puts forth, it is unquestionably environmentally unfriendly.

c

Thank you for sending me the letter and allowing my input.

Respectfully,



Steve Tyler
2564 Franki St
Orange, CA 92865

Response No. 47

Steve Tyler

47a. This paragraph provides an introduction to the comment letter and does not require a response.

47b. No purchase agreements with local water purveyors (including Santa Margarita Water District) exist.

In addition, refer to Response 20c, above.

47c. Comment noted. No response is necessary.

JAN D. VANDERSLOOT, MD

Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Email: JonV3@aol.com

Phone: (714) 848-0770
FAX: (714) 848-6643

City of Huntington Beach

May 27, 2005

MAY 27 2005

Ricky Ramos
City of Huntington Beach Planning Department
2000 Main Street
Huntington Beach, CA 92648

Re: Draft Recirculated Environmental Impact report No. 00-02 for the Seawater Desalination Project at Huntington Beach

Dear Mr. Ramos:

Thank you for the opportunity to comment on the above referenced Draft EIR.

I am taking the liberty of resubmitting the comments I made in my letter to Mayor Connie Boardman and Huntington Beach City Councilmembers of November 16, 2003 which includes a number of attachments.

I ask that this letter and attachments serve as comments to be addressed in the current Recirculated Draft EIR, as I find that the Recirculated Draft EIR does not address the particular comments I made in that letter.

In particular, the Draft Recirculated EIR does not make an in-depth analysis of the Komex study for the California Energy Commission of August 4, 2003. In fact, the current Draft EIR states that: "Based on the water quality sampling and the modeling studies, Komex concluded that the HBGS was not contributing to the beach contamination problem" (page 2-9 and 4-19)". Also on page 4-20, it is stated "Three separate studies conducted between 2001 and 2002 have demonstrated that HBGS is not the source of bacteria in the surf zone". This is not true. This erroneous language is also used on page 5.10-2, first sentence, page 5.10-5, second paragraph from the bottom, and page 5.10-27, three paragraphs from the top.

The actual language in the Komex study states: "Land-based sources of bacteria (particularly BD and BFW) do enter the discharge vault and are discharged to the ocean, but not at concentrations high enough to contribute *significantly* to bacterial contamination of the surf zone of Huntington State Beach..." (my emphasis to point out the word *significantly*, which means that the bacteria reach the beach and do contribute to the bacterial contamination of the beach). See page iv of the Komex Report, attached. Also see figure 4-4, page 4-19 of the Draft Recirculated EIR showing "Surf Zone=47" referring to the number of total coliforms at HBGS reaching the Surf Zone, Summer 2002. Moreover, page 42 of the Komex report showed total coliform elevations in the HBGS discharge vault exceeding 24,192 MPN/100cc, the limit of the measuring device, with e.coli ranging to 1,296 MPN/100cc and enterococcus ranging to 1,694 MPN in the discharge vault. Divide these numbers by a 36 dilution gives 672 MPN/100 total coliforms, 36 e.coli, and 47 enterococci reaching the surf zone.

The point is that bacteria from the HBGS do reach the surf zone and therefore may contribute to the beach contamination problem. The bacteria may also multiply by reconstituting in the beach.

JAN D. VANDERSLOOT, MD

Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Email: JonV3@aol.com

Phone: (714) 848-0770
FAX: (714) 848-6643

sand (see below reference to the Peer Review Summary of the HB Shoreline Contamination Study).

In addition, because the desalination process excludes bacteria from passing through the membranes, the brine concentrate will contain these bacteria and double the concentration as it also twice concentrates the other constituents of the source water. This double-concentrated discharge then has the possibility of reaching the surf zone and further contributing to the beach contamination problem.

Moreover, the Komex report also states that: "Sub-thermocline water is occasionally entrained into the AES HBGS intake. During this study there were no specific indications that the intake water contained part of the OCSD plume. However one event in August and three brief events in September demonstrated (brief) entrainment of sub-thermocline water into the intake vault. The mechanism to support the Grant Hypothesis has been demonstrated on four brief occasions in this study" (page iv of the Komex report).

This shows the possibility of the OCSD plume entering the HBGS plant intake and affecting the desalination facilities, as well as the possibility of the OCSD plume also contributing to the beach contamination problem. This possibility should be stated as such in the Draft Recirculated EIR.

The Draft EIR fails to mention the "Peer Review Panel Summary Report, Huntington Beach Shoreline Contamination Investigation, Phase III", prepared by the USC Sea Grant Program and the University of California, Santa Barbara Marine Science Institute, March 21, 2003". The importance of this review is that mechanisms exist that can transport the OCSD sewage plume to the beach, where low levels of bacteria can reconstitute in the beach sand. Moreover the report states "categorical dismissal of the OCSD plume as a major cause of beach contamination is not scientifically justifiable at this point" (see page 4 of the attached Executive Summary of the report).

The Executive Summary also suggests that future study is needed to further characterize the fate and transport of the OCSD plume, stating: "Such a model, including the AES Power Plant plume and other sources, will likely be the only way to reach definitive conclusions about what proportion of beach contamination is due to the OCSD effluent." (see page 6 attached Executive Summary).

This is important because no single source of the beach contamination problem has been identified. The Draft EIR states: "... the Santa Ana River and Talbert Marsh appear to be the primary sources of fecal bacteria to the near shore ocean" However, the Komex study showed a spatial gap between the Santa Ana River, Talbert Marsh, and the contaminated beach area adjacent to the AES plant, 6N and 9N. See attached Plate 46 from the Komex report. This spatial gap shows that the Santa Ana River and Talbert Marsh are not the cause of the beach contamination problem. Recall that the Santa Ana River is 8,300 feet south of the AES plant, over a mile, while the OCSD discharge has been shown to come as close as ½ mile to the shore, closer than the Santa Ana River.

The Draft EIR does not explicitly state how many actual RO membranes are proposed. The EIR mentions 13 treatment trains. How many membranes are there in 13 treatment trains? This is important in trying to determine quantities of RO membrane cleaning solutions. Table 5.10-8 shows quantities per RO membrane. How many membranes are there?

JAN D. VANDERSLOOT, MD

Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Email: JonV3@aol.com

Phone: (714) 848-0770

FAX: (714) 848-6643

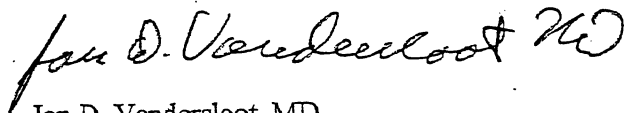
The EIR does not address the increase in marine mortality by increased AES plant pumping operations at night-time when marine organisms are most active. How will the desalination operations change the nighttime operations of the AES plant?

g

Thank you for the opportunity to comment. Please see attachments and respond to the comments in the November 16, 2003 letter to Mayor Connie Boardman, and the May 29, 2003 and July 22, 2003 letters to Planning Commission Chairman Randy Kokal.

h

Sincerely,



Jan D. Vandersloot, MD

Attachments:

JAN D. VANDERSLOOT, MD

Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Phone: (714) 848-0770
FAX: (714) 848-6643

November 16, 2003

Mayor Connie Boardman, and
Huntington Beach City Councilmembers
City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Re: Huntington Beach City Council Meeting November 17, 2003
Agenda items D-2a and D-2b
Poseidon EIR, CUP, and CDP

Dear Mayor Boardman, and Huntington Beach City Councilmembers:

I am writing to request that you oppose certification of the EIR for the Poseidon Desalination Project and that you vote to deny the Conditional Use Permit (CUP) and Coastal Development Permit for this project.

Regarding the Poseidon EIR, I believe there is a major deficiency in the EIR not considering the study written by Komex H2O, Inc. for the California Energy Commission (CEC) titled: "AES Huntington Beach Generating Station Surf Zone Water Quality Study, Final Draft, dated August 4, 2003". In the meantime, the CEC has written you a letter dated November 7, 2003, giving you many reasons why the Poseidon EIR is deficient because of its association with the operations of the AES plant.

Although I had written an email dated September 8, 2003 to the Planning Commission recommending consideration of AES CEC study report, and sent it to you by email (see attached), this report was not considered nor referenced in the EIR certified by the Planning Commission. Neither the staff nor Planning Commission made an analysis of the data within this report.

However, the attached email details my own analysis of the Komex AES CEC study, which should give you reason to request further analysis of the Poseidon EIR. The AES CEC report shows how bacteria from the AES plant is found within the plant and within the intake and discharge vaults of the AES plant, where it is then discharged into the ocean some 1500 feet offshore. The report shows how bacteria are then diluted at only a 36 to 1 ratio when the bacteria hit the shoreline. Concentrations of bacteria within the discharge vault sometimes exceeded 24,192 MPN/100cc, which was the limit of the ability of the instrument to measure the bacteria. The actual numbers of bacteria could have been much higher. The dye study in the AES CEC study showed that the AES discharge plume reaches the shoreline within an hour of injection into the discharge vault.

Since the Poseidon desalination operations will concentrate and add other constituents to the AES discharge plume, consideration must be made to what impact the Poseidon operations will have on beach bacteria and marine water quality. Given the persistently high bacteria readings on the beach adjacent to the AES plant in the vicinity of Magnolia Street, it is critical to further examine the role of the AES plant and the proposed desalination plant's impact on the AES discharge.

JAN D. VANDERSLOOT, MD

Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Phone: (714) 848-0770
FAX: (714) 848-6643

I am submitting another report for your consideration titled: "Huntington Beach Shoreline Contamination Investigation, Phase III, Peer Review Panel Summary Report", dated March 21, 2003. Page 4 of this report, bottom of the page, states: "If the beach is considered to be the end of the transport pathway, and the bacteria transported to shore remain on shore or trapped in the surfzone, possibly adsorbed to sediment particles, then low concentrations of bacteria just offshore can be reconcentrated at the beach. The potential for resuspension of fecal indicator bacteria within the surfzone was not addressed in the Phase III study and therefore cannot be ruled out as a possible source of beach contamination."

Although this report referred to the OCSD outfall, the same principles apply to the AES outfall, which also discharges bacteria, although in lower amounts than the OCSD outfall. However, unlike OCSD, the AES outfall discharge has been definitively shown to reach the beach. I am enclosing the color photographs of the dye study in the AES CEC report to show how the AES discharge is shown to reach the beach, Figure 4-19b and Plate 5-1. This could be the explanation for the high bacteria readings on the beach. Bacteria from the AES discharge vault reaching the beach, resuspending in the surfzone and reconstituting on the beach adsorbed to sand particles,

The Poseidon operations, through concentration and addition, will alter the bacterial levels within the AES discharge vault, and therefore the bacterial levels that reach the beach, where they may become resuspended and reconcentrated, perhaps worsening the bacteria problems on the beach at 9 North. This impact should be analyzed in the EIR.

I am also attaching my letter to the Planning Commission of May 29, 2003, along with Exhibits 13, 14, and 16 from the Poseidon EIR, showing how the salinities from the AES discharge follow the shoreline, outlining the plume. Again, if bacteria are also entrained in this plume, you can see how the beach can receive these bacteria, and you have an explanation for the beach pollution problems we continue to have along this stretch of beach. In this letter, I requested further analysis of this potential impact in the EIR, which was never done.

I am also attaching my letter to the Planning Commission of July 22, 2003, detailing my concerns about the privatization of public water supplies, and the potential for security problems and difficulties with international trade laws if Poseidon should sell out to a foreign company. Poseidon is already partly owned by US Filter, a French company despite its name. Our public water supply should remain in public hands, subject to public oversight, and not be manipulated by for-profit and foreign corporations.

I am also attaching the recent news article from the St. Petersburg Times, published October 30, 2003, titled: "Desal builder files for bankruptcy". I think this article should give you pause as to the financial stability of the company who is making application for this project and the financial promises being made. I would also ask if it is smart to locate a water reservoir over an area subject to earthquake and liquefaction potential.

All in all, the Poseidon desalination project raises many questions that need to be answered before you approve this project or its EIR. I think this project is the wrong project in the wrong place. Desalination of ocean water is a potential source of water, but locating a plant at the AES site is just asking for trouble.

JAN D. VANDERSLOOT, MD
Certified, American Board of Dermatology

8101 Newman Ave, Suite C
Huntington Beach, CA 92647

Phone: (714) 848-0770
FAX: (714) 848-6643

The Planning Commission developed "Suggested Findings For Denial, Conditional Use Permit No. 02-04/Coastal Development Permit No. 02-05", attached. I recommend that you adopt these findings for denial, in addition to finding the EIR to be inadequate as submitted.

↑
m

Thank you.

Sincerely,

Jan D. Vandersloot MD

Jan D. Vandersloot, MD

Attachments:

1. September 8, 2003 Email to Planning Commission and City Councilmembers
2. March 21, 2003 Huntington Beach Shoreline Contamination Investigation, Phase III, Peer Review Panel Summary Report
3. May 29, 2003 Letter to the HB Planning Commission
4. Exhibits 13, 14, and 16 from the Poseidon EIR
5. July 22, 2003 Letter to HB Planning Commission
6. October 30, 2003 Newspaper Article from the St. Petersburg Times
7. Suggested Findings For Denial, Conditional Use Permit No. 02-04/Coastal Development Permit No.02-05

Subject: [sehbna] OOG et al: AES CEC Study, HB Planning Commission Tuesday, 7 PM
 Date: 9/8/2003 1:01:16 AM Pacific Daylight Time
 From: JonV3@aol.com
 Reply-to: sehbna@yahoo.com
 To: JonV3@aol.com, sehbna@yahoo.com, oceanoutfallgroup@yahoo.com,
hbdac@hotmail.com, DSULLIVAN@socal.rr.com, BoardmaC@surfcity-hb.org,
CBoardBCLT@aol.com, Hbmissiill@aol.com, gcoerp1@gte.net, CB4Council@aol.com,
cgreen@surfcity-hb.org, gcoerper@surfcity-hb.org, jhardy@surfcity-hb.org, phouchen@surfcity-hb.org,
dsullivan@surfcity-hb.org, PPcgreen@aol.com, contact-pro@mindspring.com,
rkokal@juno.com, TomNeillivengood@aol.com, rdd@socal.rr.com, steveay4surfcity@hotmail.com,
shomaker@att.net, jdscaudura@earthlink.net
Sent from the Internet (Details)

September 8, 2003

Re: Poseidon CUP, HB Planning Commission, September 9, 2003

Dear Huntington Beach City Council and Planning Commissioners:

This is part of my ongoing analysis of the AES Huntington Beach Generating Station Surf Zone Water Quality Study, Final Draft, prepared for the California Energy Commission, prepared by Komex H2O Science Inc, dated August 4, 2003. After spending some 20 hours reading and rereading this report, these are my recommendations and findings for the Poseidon EIR, CUP, and further AES proceedings:

Recommendations:

1. Because the AES CEC report shows that bacteria from the AES operations are discharged into the ocean and come back to shore via the AES plume, this whole report should be included in the Poseidon Desalination EIR, as a Supplemental EIR, because the findings in this report were not considered in the Poseidon Desalination EIR, and Poseidon will alter the AES discharge by virtue of concentration and addition.
2. The Conditional Use Permit for the Poseidon Desalination Project should contain requirements that: 1. All freshwater discharges from AES into the Discharge Vault of AES should be diverted to the OCSD for further treatment and not be allowed to enter either the Poseidon intake pipes or the AES discharge pipe. 2. The brine concentrate from Poseidon should be diverted to OCSD for further treatment, similar to the treatment of the brine concentrate from the GWRS system. 3. Blackford's Ditch has characteristics of a wetland and should be considered as such in terms of enclosing it in a box culvert as part of the widening of Newland. 4. Internal practices by AES that resulted in lower bacterial counts in 2002 than in 2001 should be identified and required for future practices to prevent backsliding.

These recommendations are based on the following findings, with page numbers referring to the AES CEC Report:

1. The AES discharge plume into the ocean 1200 feet from the shoreline comes back through the surf zone and affects the beach, as proven by the August 2002 dye study. The plume reached the beach first at Station 12 North, and then appeared on the beach to the south (p.116-118) (plates 4-18, 4-19b).
2. The discharge plume goes straight up to the surface of the ocean, without dilution, from the AES discharge port, which is 19 feet wide and only 11 feet below the surface of the ocean, at a distance of 1200 feet from the shoreline. At the surface of the ocean, the plume is diluted by 6 to 1, reaches the surf zone at 24 to 1, then the beach at a minimum of 36 to 1 dilution (p. 123).
3. The discharge plume, as evidenced by the dye study, can reach the intake port some 700 feet away from the discharge port, at a dilution of 24 to 1 at 600 feet (p. 117), and the plume fills the entire water column (p.126). Komex did no measurements of dye inside of the intake pipe, however.
4. The bacteria from the discharge pipe get on the beach, contributing total coliforms, fecal coliforms, and enterococci to the beach bacteria. Komex estimates that up to 16% of the Enterococci bacteria on the beach come from the AES discharge (p. 134).

5. Komex fails to consider the influence of beach sand acting as a reservoir and sink for continuous bacterial buildup and propagation from the AES discharge, although it does give an analysis of how bacteria survive and enhance in a saline environment (p.178-183). The independent peer review panel evaluating the OCSD Phase 2 investigation first proposed the role of beach sand acting as a reservoir. However, OCSD consistently denies that bacteria from its outfall ever reach the beach. On the other hand, Komex has shown in this report that bacteria from the AES outfall consistently reach the beach.

6. The intake vault contains high bacteria levels that Komex blames on a contaminated ocean (p. 107). However, Komex did not do any studies of the ocean bacteria at the intake port or the discharge port. If the ocean is contaminated at the intake port, this would be the first evidence that the ocean is contaminated with measurable levels of indicator bacteria at 1500 feet out from the shoreline, where the intake port is located 23 feet below the surface of the ocean. (p.17).

7. Intake Forebay bacterial concentrations between May 30 and September 28, 2001, ranged up to 12,997 MPN/100 cc Enterococci (AB 411 standard is 104 CFU/100cc for a single water sample) (p.42).

8. Intake Vault bacterial concentrations in the summer of 2002 between July 12 and October 5, 2002, would have caused 4 exceedances of AB 411 if collected in the surf zone (p.80).

9. Discharge Vault bacterial concentrations ranged up to total coliforms >24,192 MPN/100cc, fecal coliforms up to 1,296 MPN/100cc, and Enterococci to 1,694 MPN/100cc between May 30 and September 28, 2001 (p.42) (AB 411 standards are a maximum of 10,000 Total Coliforms, 400 Fecal Coliforms MPN/100cc, or 104 Enterococcus CFU/100cc in a single water sample). Note that values >24,192 exceeded the instrument's capacity; therefore the actual numbers are higher, maybe much higher.

10. Discharge Vault concentrations in the summer of 2002 would have caused a total of 6 exceedances of AB 411 standards if the samples were collected in the surf zone.

11. Bacterial concentrations at the intake and discharge vaults exceeded AB 411 21 times if the samples had been collected in the surf zone (Table 5.1). Of these exceedances nine were observed in the intake value and therefore represent an import of contamination from the ocean. (p. 107)

12. A considerable amount of bacteria comes into the discharge vault of the AES plant from on-site fresh water sources. "The source of the bacterial contamination within the discharge vault is most likely a freshwater source" (p. 107). These on-site sources include the General Purpose Retention Basin, receiving water from yard and in-plant drains (p. 20), the Boiler Fireside Wash, the Boiler Sump Wash, the Storm Water Sump, and Blackford's Ditch on Newland. The discharge from the General Purpose Retention Basin goes into the discharge vault at a rate of up to 230,000 gallons a day. (p. 121). Indicator bacteria concentrations from these sources added up to 644 exceedances of AB 411 standards if the samples had been collected from the surf zone (p. 82 to 84).

13. Ammonia levels are very high within the system at both intake and discharge vaults, without adequate explanation. Only surmises are offered to explain high ammonia levels, including the highly questionable contention that bivalve biofouling occurs at an arbitrary density of 500,000 bivalves (mussels, clams) per square meter lining the intake pipe surface (p.112), despite procedures to prevent biofouling such as reverse flow heat treatments (p.19) and removal by divers. This would equate to a diameter of a bivalve being .003 of an inch, or 323 bivalves per square inch. The other explanation questions the accuracy and sensitivity of the EPA methodology, as Komex could not explain consistently high ammonia levels above 1.0 mg/l in both intake and discharge vaults (p.112).

14. Data is thrown out if Komex could not explain it, such as low salinities on CTD Cast #1. These salinities were thought to be not possible, so the salinity values were not included in the subsequent analyses (p. 97).

15. Data had to be "rectified" or altered to match the data from other studies, including adjusted temperature data that was used to calculate adjusted salinities. (p. 95)

16. The Grant hypothesis of entrainment of OCSD discharge could not be dismissed, and evidence of cold subthermocline water in the intake vault was found (P.138).

17. An alternate hypothesis of entrainment of water and bacteria from the San Gabriel, Los Angeles, or Santa Ana

River, by the AES plume is suggested. (P.141).

18. The computer model of the plume discharge did not match the actual observations of the dye study until far field distance. The near field and intermediate field were not accurately depicted by the UM computer model (p.127).

19. Blackford's Ditch along Newland qualifies as a wetland. It is called a creek (p.58). "Approximately 100 feet of the creek has water present to a depth of two feet. The presence of adapted plants and small fish observed in the creek suggests that the creek is a standing body of water for long periods" ... "The creek is hydraulically connected to the discharge vault and, at high tides; ocean water from the discharge vault may be forced up into the creek." (p.58). Also, salinity concentrations were approximately 2/3 of ocean water and decreased along the length of the ditch from the pump house to the dry inlet (p. 93). Also, tolytriazole, a corrosion inhibitor used in the AES plant, was found in the ditch (p. 93). Blackford's Ditch is also called a creek, with poor water quality and high concentrations of indicator bacteria (p.108).

20. Internal practices in the AES plant improved high bacterial counts in the discharge vaults and other locations in 2002 compared to 2001 (p. 136). No mention of what these "internal practices" actually were. If verified, these practices should be codified.

21. In-Plant Water Quality Measurements included the following high values:

Intake Vault: Enterococcus to 590 cfu/100 cc (AB 411 is maximum 104) (p.80)

Discharge Vault: Enterococcus to 610 cfu/100cc (p.81)

Blackford's Ditch: Total Coliforms up to 370,000 cfu/100cc (AB 411 is 10,000)

Fecal Coliforms to 31,000 cfu/100cc (AB 411 is 400),

Enterococcus to 62,000 cfu/100cc (AB 411 is 194) (p. 82)

Boiler Fireside Wash: Total Coliforms to 68,000, Fecal Coliforms to 4,300,

Enterococcus to 160,000 cfu/100cc (p.82)

Boiler Sump Wash: Total Coliforms 21,000, Fecal Coliforms 3,800, Enterococcus to 11,000 (p.83)

Storm Water Sump: Total Coliforms to 11,000, Fecal Coliforms to 1,400,

Enterococcus to 2,200 (p.83)

General Purpose Retention Basin: Total Coliforms to 32,000, Fecal Coliforms to 9,400, Enterococcus to 700 (p.84)

These all show high numbers of indicator bacteria that get discharged into the Discharge Vault and ultimately out into the ocean, where they come back to shore.

The Poseidon desalination operations may act to concentrate these bacteria and other freshwater toxics such as corrosion inhibitor, and therefore all freshwater inputs to the discharge vault should be diverted to OCSD, where the toxics can be regulated under OCSD's source control program. In addition, whatever toxics and bacteria that are concentrated after Poseidon's operations should be sent to OCSD for further treatment similar to the GWRS program.

Respectfully submitted,

Jan D. Vandersloot, MD
2221 East 16th Street
Newport Beach, CA 92663
(949) 548-6326

To unsubscribe from this group, send an email to:
sehbna-unsubscribe@yahooogroups.com

Your use of Yahoo! Groups is subject to the Yahoo! Terms of Service.

Huntington Beach Shoreline Contamination Investigation, Phase III

Peer Review Panel Summary Report

Prepared by

University of Southern California
Sea Grant Program

and

University of California, Santa Barbara
Marine Science Institute

March 21, 2003



0

Executive Summary of Review Panel Comments on the
Huntington Beach Phase III Final Draft Report
March 21, 2003

Background

High bacteria counts at Huntington State Beach forced a two-month beach closure in the summer of 1999, at significant cost to the community. This occurred immediately upon implementation of the AB411 beach closure standards. The Orange County Sanitation District (OCSD) conducted a series of studies to determine the source of the bacteria. Initial studies suggested that contamination from the sewage outfall 7 km off the east end of the beach was unlikely, but not impossible. Sewage leakage from beach restrooms, and animal waste from nearby Talbert Marsh have been implicated in tracer studies, but the source of the contamination had not been clearly identified as of spring, 2001.

Scientific Objectives

Phase III of the Huntington Beach Shoreline Contamination Investigation re-focused attention on the sewage outfall, with specific hypotheses concerning onshore transport of the sewage plume. The study objectives, as originally stated in the Huntington Beach Shoreline Contamination Investigation, Phase III Workplan are: "1) characterize the physical oceanographic processes involved in possible cross-shelf transport of the wastewater plume in the vicinity of the AES thermal discharge outfall; 2) determine if there is a causal link between offshore and surf zone bacteria and related plume constituents; and 3) determine if the conditions during the summer of 2001 are similar to those of 1999 and other years with unusual surf zone bacteria levels".

The Principal Investigators (PIs) in the study, after careful consideration, re-defined the objectives in October, 2002 thus: "The principal objective for this multifaceted measurement program was to determine if there is a causal link between offshore wastewater discharge and significant bacterial contamination at or above state beach sanitation standards (i.e., AB411) along the Huntington Beach shoreline. This objective includes the aim of identifying coastal ocean processes that could explain any observed links. A secondary objective was to determine the principal coastal-ocean circulation patterns in this region, allowing the evaluation of any new ideas that may arise or gain recognition during or following this study. Thirdly, conditions during the summer of 2001 would be compared to those of 1999 and other years with a high incidence of surf zone bacteria contamination." By this statement, the PIs defined the important issue as bacterial contamination causing beach closures, not a more general question about bacterial transport.

Study Result

As stated in the Phase III Draft Report:

"... there were no direct observations of either the high bacteria concentrations seen in the OCSD plume at the shelf break reaching the shoreline in significant levels or of an association between the existence of a coastal ocean process and beach contamination at or above AB411 levels. It is concluded that the OCSD plume is not a major cause of beach contamination; no causal links could be demonstrated. This conclusion is based on the absence of direct observation of links between bacteria in the outfall plume and beach contamination, on analysis of spatial and temporal patterns of shoreline contamination and coastal processes, and on the observation of higher levels of contamination at the beach than in the plume."

Review Process

The University of Southern California Sea Grant Program convened an independent panel of experts to conduct a peer review of the Huntington Beach Phase III Study. The purpose of this review was to "evaluate the scientific process, data, and interpretation of scientific results, and provide ongoing feedback to help guide the investigators in their analysis of these studies." The Review Panel met with the Principal Investigators in person in April 2002 for preliminary presentations of the Phase III Study results and analyses. Subsequent to this first meeting, the Panel submitted a Preliminary Report to OCSD on their initial findings of the Phase III Study on May 15, 2002. In August 2002, the Panel and PIs met again to further discuss the analyses of the Phase III data. Following the August meeting, the Panel submitted a second response to the PIs with recommendations for further improvement of the Phase III analyses. The Panel and PIs have also corresponded via phone and email throughout the review process. A written Final Draft report was made available by the PIs in January 2003 for review by the Panel. This Executive Summary is the result of a concerted peer review effort by the Review Panel over the last two months and represents a synopsis of their collective comments on the Phase III Final Draft Report.

The Review Panel consisted of:

John Allen, Ph. D.

Oregon State University

Theoretical geophysical fluid dynamics; Coastal ocean dynamics

Jack Barth, Ph. D.

Oregon State University

Coastal ocean dynamics; Flow-topography interactions

Walter E. Frick, Ph.D.

USEPA Ecosystems Research Division.

Plume models for outfall design and assessment; Low-velocity compressible flow theory

Roger Fujioka, Ph.D.

Water Resources Research Center, University of Hawaii

Environmental water quality; Public health microbiology

Trish Holden, Ph.D.

University of California, Santa Barbara

Microbiology; Bacterial community fingerprinting

Jesus Pineda, Ph.D.

Woods Hole Oceanographic Institution

Cross-shore transport of planktonic larvae; Benthic population ecology

Cynthia Cudaback, Ph. D. (Co-chair)

University of California, Santa Barbara

Inner shelf transport and effect on biological communities

Judy Lemus, Ph.D. (Co-chair)

Sea Grant Program, University of Southern California

Marine Advisory Program Leader

Review Panel Objectives

OCSD initiated Phase III of the HB studies to determine whether sewage discharged offshore from Huntington Beach can be transported to the beach and under what conditions it may do so. Therefore, the Panel has focused on three main questions:

1. Do the studies adequately answer the specific investigatory objectives that were addressed?
2. Were the data properly interpreted and presented in the preliminary reports?
3. Are there other studies that could be conducted to determine the risk of plume insurgency onto the shoreline?

General Comments

The Panel acknowledges that the Phase III field studies conducted during the summer of 2001 were of high quality and represent a commendable undertaking. The size and completeness of the data that this study has generated set is also impressive. Given the amount of time available to the Principal Investigators, the analyses are progressing well.

The Panel considers the Final Draft Report to be a good start at analyzing the full complement of data and expect that several new contributions to the field of ocean coastal circulation will be forthcoming from this work.

The main conclusion of the Final Draft Report, "It is concluded that the OCSD plume is not a major cause of beach contamination; no causal links could be demonstrated," is complex, with two separate statements. The second statement, "no causal links could be demonstrated," is based on temporal and spatial disconnects between the outfall, transport processes, and beach contamination. Although events that might drive onshore transport of bacteria were observed (such as cold water entering the surf zone), these events did not coincide with or precede beach contamination events in exceedence of the AB411 standards. High bacterial concentrations were observed near the outfall and at the beach, but measurements also indicated that there was a zone of lower concentration between the two regions. Given the current status of analyses on the Phase III studies and based on the available measurements, this conclusion seems to be reasonable and accurate. However, with respect to the first half of the conclusion, "the OCSD plume is not a major cause of beach contamination," the Panel finds that this statement is not supportable because of the incomplete nature of the analyses and to limitations in the spatial and temporal resolution of the Phase III sampling. While a connection between the OCSD outfall and beach contamination has not been found, a lack of understanding of some key parameters warrants caution; categorical dismissal of the OCSD plume as a major cause of beach contamination is not scientifically justifiable at this point. Several variables that remain in question are discussed below.

1) Bacterial sampling

The Panel recognizes the difficulty of collecting and analyzing bacterial data, but notes that the spatial and temporal resolution of sampling in this study was heavily weighted towards hydrographic data. While these field experiments far exceeded previous studies in sampling intensity, and the number of bacterial samples processed by OCSD was extraordinary, the bacterial monitoring data remain a limitation. Accordingly, the transport and behavior of bacteria in the coastal ocean is not adequately understood. Another limitation of the surfzone bacterial analyses is that a large percentage of the data are not graphically represented because samples with less than 20 MPN total or fecal coliform or less than 10 MPN enterococci, are not included (HB-III Final Draft Report, Figs. 2a, 2b, 2c).

2) Spatial disconnection

The argument that the OCSD outfall plume is not a major source of beach contamination relies on the spatial gap between high bacterial concentrations in the core of the plume and the high bacterial concentrations measured at the beach. Given that the transport properties of bacteria in the coastal ocean are not well understood, it seems prudent to allow for the possibility of a range of plausible behaviors. A possible mechanism for bridging the observed spatial disconnect could be in the reconcentration of bacteria either within the surfzone or during transport. If the beach is considered to be the end of the transport pathway, and bacteria transported to shore remain on shore or trapped in the surfzone, possibly adsorbed to sediment particles, then low concentrations of bacteria just

offshore can be reconcentrated at the beach. The potential for resuspension of fecal indicator bacteria within the surfzone was not addressed in the Phase III study and therefore cannot be ruled out as a possible source of beach contamination. Another explanation involves the gravitational collapse of the plume, which tends to limit its vertical extent. As a vertically collapsed lens, the plume could penetrate coarse vertical sampling grids, and thereby lead to substantial bacteria maxima being missed.

3) Patchiness

The spatial discontinuity between high concentrations of bacteria in the outfall plume and high concentrations of bacteria at the beach may be due to a patchy distribution of bacteria and other plume tracers. The Phase III data clearly demonstrate that the plume field can be patchy (Fig. 5-12, Volume II), and that patches of the plume can sometimes come close to shore (Figs. 3-11 and 6-12, Volume II). Although the region between the plume signature and the beach contains low bacterial concentrations, the distance between the two is sufficiently close to warrant careful consideration of sampling adequacy. Additionally, these high values at shallow depths are coincident in time with high bacterial concentrations near the beach.

4) Surface transport

The wind-driven surface transport of buoyant particles should be examined as a possible pathway for the transport of plume bacteria onto shore. The possibility of this mechanism was acknowledged in the Final Draft Report, but not included in the design of the Phase III studies for several reasons involving the unlikely association of bacteria with grease and oil particles, both offshore and at the beach. Indeed, the Phase III data indicate that the plume is almost always submerged beneath the thermocline. Independent modeling by one member of the Panel (W. Frick) supports these results. However, low concentrations of bacteria have been measured at the surface by OCSD personnel, and features of the plume were occasionally observed at the surface during the Phase II investigations (Figs. 3-14 and 4-13 of HB-III Final Draft Report). Finally, the accumulation of buoyant particles at onshore propagating fronts associated with an internal tide has been observed in Southern California (Pineda, 1999).

5) Cross-shelf transport mechanisms

A thorough consideration of cross-shelf transport of physical water properties and plume material is not yet complete. For example, additional analyses should be directed at quantifying the nature of the across-shelf transport of the temperature field as a function of spatial location on the shelf and as a function of frequency. In addition, internal solitary waves, which are often associated with the internal tide and capable of transporting particles onshore, are not adequately addressed in the Final Draft Report. Likewise, the association of at least one cold water intrusion into the nearshore indicates the plausibility, if not probability, of this mechanism and deserves further analysis. A third mechanism that could also be investigated is transport in the bottom boundary layer by breaking internal waves near a sloping boundary.

Future Studies

There are two main areas of concern that could benefit from further research: cross-shelf transport and circulation mechanisms, and accurate tracking of plume bacteria.

Cross-shelf transport and circulation mechanisms

- 1) The spatial and temporal variability of the internal tide must be investigated in order to better understand the role of internal tidal motions in across-shelf transport. Field observations are needed to conclusively discard internal solitary waves as a mechanism for onshore transport of plume effluent bacteria.
- 2) Further dye tracking experiments, with a release outside the surfzone, may be useful to determine whether water-borne particles can be transported from the 15m isobath to the surfzone. If possible, adding dye to the effluent after the 200:1 dilution near the outfall may also yield profitable results. This latter experiment would need to be timed with the occurrence of spring tides.
- 3) The nature of the across-shelf circulation could be further explored by examining in more detail the coupled behavior of the temperature and velocity field. This analysis should include calculations of the mean across-shelf and along-shelf fluxes of temperature (uT and vT) as a function of depth and spatial location on the shelf, including a breakdown into contributions from different frequency bands.
- 4) A comprehensive model of plume rise, ocean circulation, and very possibly bottom and sea-surface atmospheric interaction is necessary to help synthesize the complex processes and interactions involved in the transport and fate of the OCSD effluent. Such a model, including the AES Power Plant plume and other sources, will likely be the only way to reach definitive conclusions about what proportion of beach contamination is due to the OCSD effluent.

Tracking of plume bacteria

- 1) One important issue that remains unanswered, and should be addressed in future studies, is the question of which chemical and physical oceanographic measurements are suitable tracers for fecal indicator bacteria and for pathogens directly.
- 2) Good high-resolution time series data of some plume indicator other than temperature and salinity would be beneficial. This will not be possible for bacteria, but could be done for tracers, such as nutrients, as one (J. Largier) has used in other areas. Commercially available moored nutrient sensors could be deployed along the potential pathway to provide high-temporal resolution measurements of a chemical signature of the plume.

- 3) Although the objective of the current study was to demonstrate whether the ocean outfall was responsible for *high* bacterial counts in the surfzone, the probability that measurable but *low* levels (1-50 MPN/100 ml) of fecal bacteria in ocean effluent do reach the surfzone remains an important question to answer for all ocean outfalls.
- 4) The possibility of beach contamination due to local sources on the beach should be further addressed. Land based sources of bacteria are not restricted to restrooms, Talbert Marsh or the Santa Ana River. Bird feces, dog feces, seaweed, and soil on the beach, and marine mammals are other known sources of fecal indicator bacteria. While bird counts and marine mammal observations have been performed in previous Huntington Beach contamination studies, this contingency could be more thoroughly explored.
- 5) A good model of bacterial transport and die-off would be useful. However, bacterial die-off is a difficult issue and quantitative die-off models are rare. One such model is the Mancini model (1978) that expresses a decay coefficient as a function of light intensity, salinity, and temperature. A review of Mancini's data reveal considerable scatter, testifying to the uncertainty implicit in the decay rates derived from the model. However, the Mancini model does at least allow one to determine the sensitivity of coliform bacteria to sunlight intensity. A more complete model of bacterial die-off would necessarily be considerably more complex than the Mancini model.

Editorial Comments

The final report by the PIs should be written for an audience that is potentially unfamiliar with the issues at Huntington Beach. This requires greater clarity and more careful explanations. In many chapters, shorter paragraphs would be helpful. The report requires a number of edits, the most general of which are discussed in this section. Detailed editorial comments are contained within the appendices. The rule to follow is that a short explanation should be stated for each statement or conclusion. The authors should pay close attention to grammar for all chapters. The executive summary, especially, should be carefully edited for clarity, since this is the only section that most people will read.

Each chapter should be understandable and complete unto itself, or at least have clear references to chapters where certain issues are explained. Some chapters are long with many subheading and some are very short with few subheadings. Also, some important information is contained only in the figures and tables, making the reader's task more difficult. In general, readers should be informed of the experimental design of the study before the results are discussed. The document would be easier to read if each chapter had this structure:

1. Introduction
2. Goals or Objectives
3. Experimental Design and Methods

4. Results

5. Conclusions

In Chapter 1, the objectives of the study *must* be clearly stated in a separate sub-section (objectives are not hypotheses), and those objectives must match the charter as understood by the s. The objectives listed here resemble those in the original work order, which caused so much confusion at the last meeting between the Panel and s. Is the objective of this study to determine where the plume goes, whether it affects the beach at all, or whether it causes AB411 beach closures? This chapter should more effectively introduce the complex nature of the study, particularly the bacterial sampling, to readers, explaining the rationale for creating the type 1, type 2 and type 3 violations and discuss how the authors would use these categories of violation to interpret results. Without an explanation, these chosen types appear to be arbitrary.

Chapter 2 needs a better introduction to the bacterial sampling methods, and should be organized along the lines described above. The three bacterial violation categories are used in the discussion of this chapter, however, since the basis for these three types of violations were not clearly established, the reader cannot determine the significance of these violation events. In addition, Chapter 9, the methods section, could precede Chapter 2.

Also in Chapter 2, combine the plots for total coliform on a single page, one above the other, to show the consistent M2 pattern and along-shore propagation. Do the same for each species. This will allow a clearer discussion of patterns and make life easier for the reader. Compare the timing of observed poleward motions of total coliform with timing of flood currents measured at the ADCP closest to the shore.

The PIs should also plot the bacteria data from lines 1 and 2 in Figure 3-16 of Volume 2. This would allow them to examine the question of sampling aliasing. The analysis in Figure 3-16 should be repeated for all the intensive sampling periods. It is also important to plot vertical sections (not 3D renditions) of the ammonium data like was done for the bacteria data so that they can be examined for coherent cross-shelf structure.

References

Mancini, J.L. (1978). Numerical estimates of coliform mortality rates under various conditions. *Journal of the Water Pollution Control Federation* Nov:2477-2484.

Pineda, J. (1999). Circulation and larval distribution in internal tidal bore warm fronts. *Limnology and Oceanography* 44:1400-1414